

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for providing quality of service (QoS) guarantee, wherein the method comprises the steps of:

creating a service traffic flow classification table;

establishing a plurality of label switching paths;

configuring the attributes of the label switching paths;

obtaining service traffic flow information of a service traffic flow from a service control equipment, the service control equipment notifying of changes of the service traffic flow;
updating dynamically table entries of the service traffic flow classification table

according to the obtained service traffic flow information;

classifying and conditioning the service traffic flows entering into a core network at a downlink interface of an edge router according to the service traffic flow classification table;

forwarding the processed service traffic flows by an uplink interface of the edge router according to the attributes of the label switching paths.

2-3. (Cancelled)

4. (Currently Amended) The method according to claim 12, wherein the step of obtaining service traffic flow information is: directly obtaining the service traffic flow information from a service control equipment.

5. (Currently Amended) The method according to claim 12, wherein the step of obtaining service traffic flow information is: obtaining the service traffic flow information from the service control equipment through a resource control equipment, the resource control equipment distributing route and resource according to Qos requirements of the service traffic flow.

6. (Original) The method according to claim 1, wherein the step of establishing a plurality of label switching paths is: configuring the label switching paths statically at the uplink interface of the edge router.

7. (Original) The method according to claim 1, wherein the step of establishing a plurality of label switching paths is: establishing the label switching paths dynamically via constraint-routing label distribution protocol (CR-LDP) or resource reservation protocol–traffic engineering (RSVP-TE) at the uplink interfaces of the edge router.

8. (Original) The method according to claim 1, wherein the step of establishing a plurality of label switching paths further comprises the step of:

constructing an edge-to-edge label switching path concatenated pipe or a virtual multi-protocol label switching network on the core network by using the label switching paths.

9. (Original) The method according to claim 1, wherein the step of configuring the attributes of the label switching paths is:

configuring traffic class, priority, QoS class, bandwidth attribute of the label switching paths by network capacity planning and traffic engineering statistics.

10. (Original) The method according to claim 1, wherein the service traffic flow classification table comprises:

service traffic flow identification, priority, QoS class, bandwidth requirement, and outgoing aggregation path information.

11. (Currently Amended) The method according to claim 10, wherein the step of classifying and conditioning the service traffic flows entering into a core network at a downlink interface of an edge router according to the service traffic flow classification table comprises the steps of:

obtaining a ~~the~~ service traffic flow identification of the service traffic flow entering into the core network;

looking up the service traffic flow classification table according to the service traffic flow identification;

classifying and conditioning the service traffic flows entering into the core network according to the corresponding service traffic flow information in the service traffic flow classification table.

12. (Original) The method according to claim 11, wherein the step of classifying and conditioning the service traffic flows entering into the core network according to the corresponding service traffic flow information in the service traffic flow classification table comprises the steps of:

classifying and marking the service traffic flows according to the corresponding priority and QoS class;

shaping and policing the service traffic flows according to the corresponding bandwidth requirement;

selecting the forwarding mode and path of the service traffic flows according to the corresponding outgoing aggregation path information.

13. (Original) The method according to claim 12, wherein the forwarding mode of the service traffic flow comprises:

best-effort delivery in accordance with network protocols;

delivery through the corresponding label switching paths of this class of traffic.

14. (Original) The method according to claim 13, wherein the step of forwarding the processed service traffic flow by an uplink interface of the edge router according to the attributes of the label switching paths comprises:

steering the service traffic flow to the egress router of the core network via network protocols when the best-effort delivery in accordance with network protocols is selected as the forwarding mode of the service traffic flow;

steering the service traffic flow to the egress router of the core network through the label switching path concatenated pipe or the virtual multi-protocol label switching network when the delivery through the corresponding label switching path of this class of traffic is selected as the forwarding mode of the service traffic flow.

15. (Original) The method according to claim 1, wherein the method further comprises the step of:

modifying the service traffic flow classification table according to change of the service traffic flow when the service traffic flow is changed.

16. (Original) The method according to claim 15, wherein the step of modifying the service traffic flow classification table when the service traffic flow is changed comprises:

obtaining and adding the service traffic flow information of a service session into the service traffic flow classification table when the session is established;

canceling the service traffic flow information of the service session from the service traffic flow classification table when the service session is ended.

17. (Currently Amended) An apparatus for providing quality of service (QoS) guarantee, wherein the apparatus comprises:

a service traffic flow information obtaining means, for creating a service traffic flow classification table, obtaining service traffic flow information of a service traffic flow from a service control equipment notifying of changes of the service traffic flow, and updating dynamically table entries of the service traffic flow classification table according to the obtained service traffic flow information;

a label switching path establishing means, for establishing a plurality of label switching paths;

a label switching path configuring means, for configuring the attributes of the label switching paths;

a first performing means, for classifying and conditioning service traffic flows entering a core network according to the service traffic flow classification table; and

a second performing means, for forwarding the processed service traffic flows according to the attributes of the label switching paths.

18. (Currently Amended) An edge router for providing quality of service (QoS) guarantee, comprises a configuration management interface, wherein the edge router further comprises:

a service traffic flow information obtaining means, for creating a service traffic flow classification table, obtaining service traffic flow information of a service traffic flow from a service control equipment notifying of changes of the service traffic flow, and updating dynamically table entries of the service traffic flow classification table according to the obtained service traffic flow information;

a label switching path establishing means, for establishing a plurality of label switching paths;

a label switching path configuring means, for configuring the attributes of the label switching paths;

a first performing means, for classifying and conditioning the service traffic flows entering into the core network according to the service traffic flow classification table; and

a second performing means, for forwarding the processed service traffic flow according to the attributes of the label switching paths.

19. (Currently Amended) A system for providing quality of service (QoS) guarantee, comprises a service control equipment, a resource control equipment, and an edge router, wherein the edge router comprises:

a service traffic flow information obtaining means, for creating a service traffic flow classification table, obtaining service traffic flow information of a service traffic flow from a service control equipment notifying of changes of the service traffic flow, and updating

dynamically table entries of the service traffic flow classification table according to the obtained service traffic flow information;

a label switching path establishing means, for establishing a plurality of label switching paths;

a label switching path configuring means, for configuring the attributes of the label switching paths;

a first performing means, for classifying and conditioning the service traffic flows entering into the core network according to the service traffic flow classification table; and

a second performing means, for forwarding the processed service traffic flow according to the attributes of the label switching paths.

20. (Original) The method according to claim 1, wherein the core network is an IP network.

21. (New) The apparatus according to claim 17, wherein the service traffic flow information of a service traffic flow is obtained directly from the service control equipment or from the service control equipment through a resource control equipment, the resource control equipment distributing route and resource according to Qos requirements of the service traffic flow.

22. (New) The edge router according to claim 18, wherein the service traffic flow information of a service traffic flow is obtained directly from the service control equipment or from the service control equipment through a resource control equipment, the resource control equipment distributing route and resource according to Qos requirements of the service traffic flow.

23. (New) A method for providing quality of service (QoS) guarantee, wherein the method comprises the steps of:

creating a service traffic flow classification table;

establishing a plurality of label switching paths;
configuring the attributes of the label switching paths;
classifying and conditioning the service traffic flows entering into a core network at a downlink interface of an edge router according to the service traffic flow classification table;
forwarding the processed service traffic flows by an uplink interface of the edge router according to the attributes of the label switching paths,
wherein the service traffic flow classification table comprises: service traffic flow identification, priority, QoS class, bandwidth requirement, and outgoing aggregation path information.

24. (New) The method according to claim 23, wherein the step of creating a service traffic flow classification table comprises the steps of:

obtaining service traffic flow information;
creating the service traffic flow classification table according to the obtained service traffic flow information.

25. (New) The method according to claim 24, wherein the step of obtaining service traffic flow information is: configuring the service traffic flow information statically.

26. (New) The method according to claim 24, wherein the step of obtaining service traffic flow information is: directly obtaining the service traffic flow information from a service control equipment.

27. (New) The method according to claim 24, wherein the step of obtaining service traffic flow information is: obtaining the service traffic flow information from the service control equipment through a resource control equipment.

28. (New) The method according to claim 23, wherein the step of establishing a plurality of label switching paths is: configuring the label switching paths statically at the uplink interface of the edge router.

29. (New) The method according to claim 23, wherein the step of establishing a plurality of label switching paths is: establishing the label switching paths dynamically via constraint-routing label distribution protocol (CR-LDP) or resource reservation protocol–traffic engineering (RSVP-TE) at the uplink interfaces of the edge router.

30. (New) The method according to claim 23, wherein the step of establishing a plurality of label switching paths further comprises the step of:

constructing an edge-to-edge label switching path concatenated pipe or a virtual multi-protocol label switching network on the core network by using the label switching paths.

31. (New) The method according to claim 23, wherein the step of configuring the attributes of the label switching paths is:

configuring traffic class, priority, QoS class, bandwidth attribute of the label switching paths by network capacity planning and traffic engineering statistics.

32. (New) The method according to claim 23, wherein the step of classifying and conditioning the service traffic flows entering into a core network at a downlink interface of an edge router according to the service traffic flow classification table comprises the steps of:
obtaining the service traffic flow identification;

looking up the service traffic flow classification table according to the service traffic flow identification;

classifying and conditioning the service traffic flows entering into the core network according to the corresponding service traffic flow information in the service traffic flow classification table.

33. (New) The method according to claim 32, wherein the step of classifying and conditioning the service traffic flows entering into the core network according to the corresponding service traffic flow information in the service traffic flow classification table comprises the steps of:

classifying and marking the service traffic flows according to the corresponding priority and QoS class;

shaping and policing the service traffic flows according to the corresponding bandwidth requirement;

selecting the forwarding mode and path of the service traffic flows according to the corresponding outgoing aggregation path information.

34. (New) The method according to claim 33, wherein the forwarding mode of the service traffic flow comprises:

best-effort delivery in accordance with network protocols;

delivery through the corresponding label switching paths of this class of traffic.

35. (New) The method according to claim 34, wherein the step of forwarding the processed service traffic flows by an uplink interface of the edge router according to the attributes of the label switching paths comprises:

steering the service traffic flow to the egress router of the core network via network protocols when the best-effort delivery in accordance with network protocols is selected as the forwarding mode of the service traffic flow;

steering the service traffic flow to the egress router of the core network through the label switching path concatenated pipe or the virtual multi-protocol label switching network when the delivery through the corresponding label switching path of this class of traffic is selected as the forwarding mode of the service traffic flow.

36. (New) The method according to claim 23, wherein the method further comprises the step of:

modifying the service traffic flow classification table according to change of the service traffic flow when the service traffic flow is changed.

37. (New) The method according to claim 36, wherein the step of modifying the service traffic flow classification table when the service traffic flow is changed comprises:

obtaining and adding the service traffic flow information of a service session into the service traffic flow classification table when the session is established;

cancelling the service traffic flow information of the service session from the service traffic flow classification table when the service session is ended.

38. (New) An apparatus for providing quality of service (QoS) guarantee, wherein the apparatus comprises:

a service traffic flow information obtaining means, for creating a service traffic flow classification table;

a label switching path establishing means, for establishing a plurality of label switching paths;

a label switching path configuring means, for configuring the attributes of the label switching paths;

a first performing means, for classifying and conditioning service traffic flows entering a core network according to the service traffic flow classification table; and

a second performing means, for forwarding the processed service traffic flows according to the attributes of the label switching paths,

wherein the service traffic flow classification table comprises: service traffic flow identification, priority, QoS class, bandwidth requirement, and outgoing aggregation path information.

39. (New) An edge router for providing quality of service (QoS) guarantee, comprises a configuration management interface, wherein the edge router further comprises:

a service traffic flow information obtaining means, for creating a service traffic flow classification table;

a label switching path establishing means, for establishing a plurality of label switching paths;

a label switching path configuring means, for configuring the attributes of the label switching paths;

a first performing means, for classifying and conditioning the service traffic flows entering into the core network according to the service traffic flow classification table; and

a second performing means, for forwarding the processed service traffic flow according to the attributes of the label switching paths,

wherein the service traffic flow classification table comprises: service traffic flow identification, priority, QoS class, bandwidth requirement, and outgoing aggregation path information.

40. (New) A system for providing quality of service (QoS) guarantee, comprises a service control equipment, a resource control equipment, and an edge router, wherein the edge router comprises:

a service traffic flow information obtaining means, for creating a service traffic flow classification table;

a label switching path establishing means, for establishing a plurality of label switching paths;

a label switching path configuring means, for configuring the attributes of the label switching paths;

a first performing means, for classifying and conditioning the service traffic flows entering into the core network according to the service traffic flow classification table; and a second performing means, for forwarding the processed service traffic flow according to the attributes of the label switching paths,

wherein the service traffic flow classification table comprises: service traffic flow identification, priority, QoS class, bandwidth requirement, and outgoing aggregation path information.